



UNITED STATES DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/096,113	06/11/98	HOYLER	G P98.0318

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CHICAGO IL 60606

LM02/1126

EXAMINER

JONES, H

ART UNIT      PAPER NUMBER

2763

4

DATE MAILED:

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

## Office Action Summary

Application No. 09/096,113	Applicant(s) Hoyer
Examiner Hugh Jones	Group Art Unit 2763



Responsive to communication(s) filed on Sep 8, 1999

This action is FINAL.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle 1035 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

### Disposition of Claim

Claim(s) 1-20 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-20 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

-- SEE OFFICE ACTION ON THE FOLLOWING PAGES --

Art Unit: 2763

## **DETAILED ACTION**

### *Claim Rejections - 35 USC § 101*

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-20 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Specifically, applicant is attempting to claim an algorithm. There is no pre- or post-processing of real data.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 12 recites the limitation "stability" in line 1. There is insufficient antecedent basis for this limitation in the claim.

5. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claim 12: "stability" of what?

Art Unit: 2763

- Claim 13: "compatibility" with respect to what? (Examiner appreciates the meaning of electromagnetic compatibility - the question has to do with victim and aggressor nets).

*Claim Rejections - 35 USC § 102*

6. Applicant appears to be claiming details concerning multipole expansions of various near-and far-field regions and superimposing the results - this is well known in the arts - in fact, the matter claimed in the independent claims is taught in undergraduate college electromagnetics courses; the matter taught in claim 2 is taught in graduate electromagnetics courses (equivalent circuit models for electromagnetics problems). Applicant is referred to standard textbooks (see Jackson, *Classical Dynamics*, for example).

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1-3 and 14-15 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Rokhlin et al. (3/97).**

Art Unit: 2763

9. Rokhlin et al. disclose: *Scalability of the Fast Multipole Method for the Helmholtz Equation*; and discloses details of multipole expansions, matrix methods and regions. See sections 1-5.

10. **Claims 1-3 and 14-15 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Stalzer (Parallel Processing Letters - 1995) or Stalzer (1995; from the optical physics laboratory) or Coifman et al..**

11. Stalzer discloses: *A Parallel Fast Multipole Method for the Helmholtz Equation*; and discloses details of multipole expansions, matrix methods and regions. See sections 1-2, 4 and 7.

12. Stalzer (1995; from the optical physics laboratory) discloses details concerning the fast multipole method and grouping. See particularly: abstract; pg. 326 (FMM Formulation, wherein grouping is discussed).

13. Coifman et al. disclose: *The Fast Multipole Method for the Wave Equation, A Pedestrian Prescription*; and disclose details of multipole expansions, matrix methods and regions. See entire disclosure and note fig. 2.

*Claim Rejections - 35 USC § 103*

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2763

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. **Claims 4-13 and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over [Stalzer (Parallel Processing Letters - 1995) or Stalzer (1995; from the optical physics laboratory) or Coifman et al.] in view of the taking of official notice.**
16. Stalzer (Parallel Processing Letters - 1995) discloses: *A Parallel Fast Multipole Method for the Helmholtz Equation*; and discloses details of multipole expansions, matrix methods and regions. See sections 1-2, 4 and 7.
17. Stalzer (1995; from the optical physics laboratory) discloses details concerning the fast multipole method and grouping. See particularly: abstract; pg. 326 (FMM Formulation, wherein grouping is discussed).
18. Coifman et al. disclose: *The Fast Multipole Method for the Wave Equation, A Pedestrian Prescription*; and disclose details of multipole expansions, matrix methods and regions. See entire disclosure and note fig. 2.
19. [Stalzer or Stalzer or Coifman et al.] do not disclose the limitations of claims 4-13 and 16-20 which disclose minor details concerning the mechanics of the multipole expansion (such as size of or distance to different regions and details concerning different frequency bands to be investigated); however, official notice is taken that these details would have been obvious to one of ordinary skill in the art at the time of the invention.
20. **Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over [Turner et al. or Berne et al.] in view of the taking of official notice.**

Art Unit: 2763

21. Turner et al. (U. S. Patent 5,424,963) disclose a molecular dynamics simulation and method. They teach grouping in terms of molecular dynamics as well as electromagnetics. See particularly: abstract; figs. 1-8 (especially 7; electromagnetic multipole expansion); fig. 15; col. 1, lines 20-66; col. 4, line 63 to col. 6, line 20; col. 7, lines 29-68; section D (cols. 17-23).

22. Berne et al. disclose: multipole methods and grouping: See: abstract; col. 1, lines 35-4; col. 2, lines 1-32; col. 3; col. 5, lines 16-39; col. 6, lines 7-33; col. 6, line 63 to col. 10 (fast multipole method); col. 13, lines 10-17; col. 14, lines 25-38 (boxes);

23. Turner et al. or Berne et al. do not disclose the limitations concerning matrix operations as per the multipole expansion (although Berne et al. does reference such methods: col. 26, lines 45-46); however, official notice is taken that these details would have been obvious to one of ordinary skill in the art at the time of the invention. They also do not disclose the limitations of claims 4-13 and 16-20 which disclose minor details concerning the mechanics of the multipole expansion (such as size of or distance to different regions and details concerning frequency bands to be investigated); however, official notice is taken that these details would have been obvious to one of ordinary skill in the art at the time of the invention.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Hugh Jones whose telephone number is (703) 305-0023.

Dr. Hugh Jones

November 17, 1999

  
KEVIN J. TESKA  
SUPERVISORY  
PATENT EXAMINER